



U.S. Department of Energy
Energy Efficiency and Renewable Energy



Wind Powering America

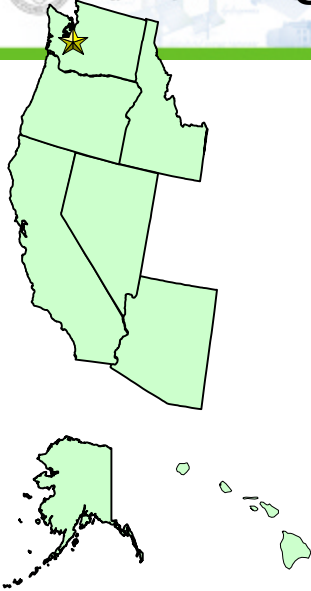
Hawaii Wind Working Group

Curtis Framel
US Dept. of Energy
Seattle Regional Office



U.S. Department of Energy
Energy Efficiency and Renewable Energy

Seattle Regional Office



- -One of six Regional Offices of DOE in Far West/ Pacific
- -Administer **EERE Program**
- -Serve **8 states** and **3 territories**
- -Staff of about **20 FTE**
- -Responsible for Administering about **\$30 million** annually, states are primary recipients



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DOE Wind Energy Program

Mission:

"Enhance the level of technology development and deployment of the Nation's fastest growing renewable energy resource."

R&D Priorities:

- Low Speed Technology
 - Large
 - Distributed
- Transmission and Integration Issues

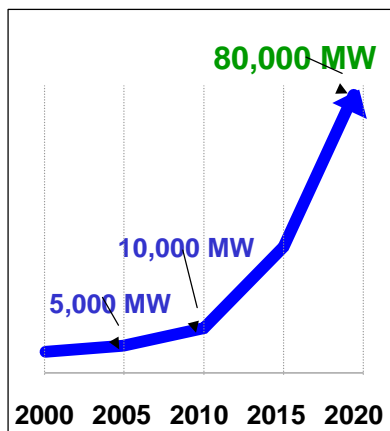
Goals:

- 2004 – COE from large systems in Class 6 winds = 3 cents/kWh
- 2007 -- COE from distributed wind systems = 10-15 cents/kWh in Class 3
- 2010 -- at least 100 MW installed in 16 states
- 2012 -- COE from large systems in Class 4 winds = 3 cents/kWh onshore or = 5 cents/kWh offshore
- 2012 -- Complete program activities for grid access, operating rules, ancillary service tariffs, and transmission expansion plans that support industry's 2020 capacity goal of 100 GW (100,000 MW)



Wind Powering America Federal Goals

- National
 - 5% nation's electricity by 2020
 - 2010 100 MW's in 16 States
 - Federal purchase of 5% wind energy by 2010 (1,000MW)





Wind Powering America

Mission: Promote increased use of domestic wind resources to enhance rural economic development and expand environmental options across America.

Goals: By 2010, at least 100 MW installed in 30 states
By 2010, at least 20 MW installed in 40 states

Annual Goals & Targets		
Year	> 20 MW	> 100 MW
2003	19	10
2004	25	12
2005	32	16
2006	34	19
2007	36	22
2008	38	25
2009	39	27
2010	40	30



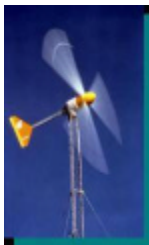
States Supported	
• Alaska	• Wisconsin
• Hawaii	• Illinois
• Washington	• Michigan
• Oregon	• Ohio
• California	• Kentucky
• Idaho	• Maine
• Nevada	• Vermont
• Utah	• New Hampshire
• Arizona	• Mass.
• Montana	• Rhode Island
• Wyoming	• Conn.
• Colorado	• New York
• New Mexico	• Pennsylvania
• North Dakota	• New Jersey
• South Dakota	• Delaware
• Nebraska	• Maryland/DC
• Oklahoma	• Virginia
• Wisconsin	• West Virginia
• Iowa	• Georgia
• Missouri	• North Carolina
	• Puerto Rico



General Focus Areas
• State Wind Support
• Utility Partnerships
• Tribal Wind Outreach
• Federal Sector
Activities Supported
• State Wind Working Group
• Wind Workshops
• Anemometer Loan Programs
• Legislative Briefings
• Wind Maps



Sizes and Applications



Small (≤10 kW)

- Homes
- Farms
- Remote Applications

(e.g. water pumping, telecom sites, icemaking)



Intermediate (10-250 kW)

- Village Power
- Hybrid Systems
- Distributed Power



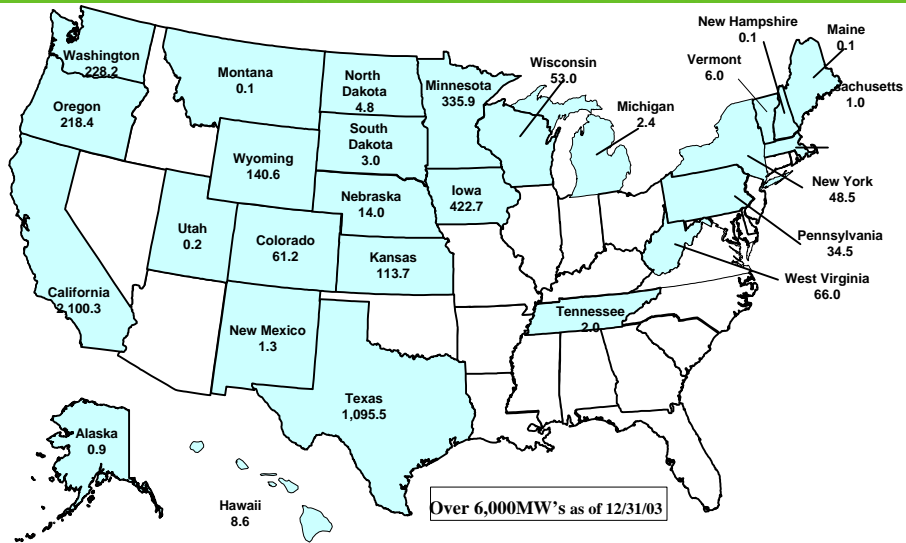
Large (250 kW - 2+MW)

- Central Station Wind Farms
- Distributed Power



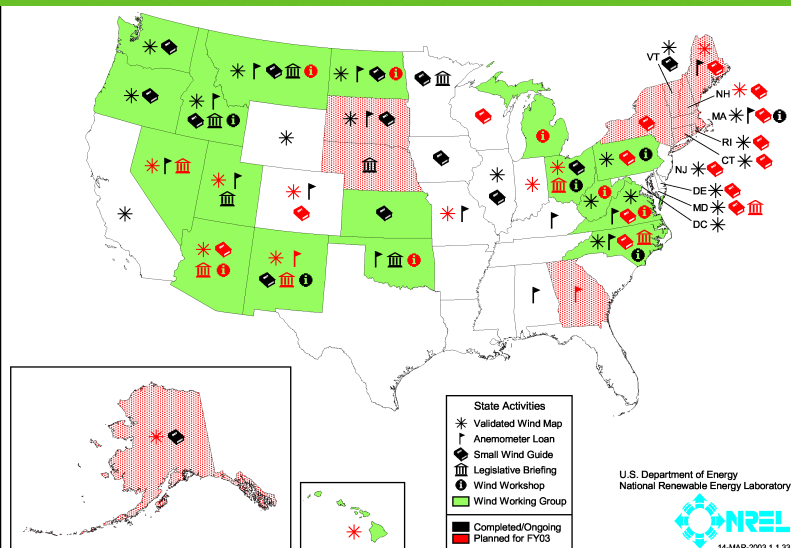
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U.S. Wind Power Capacity (MW)



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Wind Powering America State Activities





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Seattle Regional Accomplishments

- 4 State Anemometer Loan Programs
 - 30 20M towers in the field
 - Data available on state websites
- 8 Active State Wind Working Groups
- 15 State Wind Workshops
 - Over 3,000 in attendance
- 30+ Community Workshops
- 4 State Specific Small Wind Guides
 - Over 20,000 distributed within SRO
- 4 State Legislative Briefings
- 4 Validated State Wind Maps
- 4 State Wind Websites / Repositories



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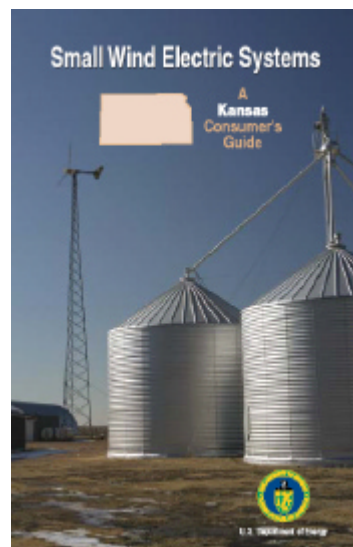
Wind Powering America Seattle Region

• Strategy

- Examine wind as option to enhance economic development
- State Energy Office key partners
- Focus on resource-rich states with little development
- Leverage Fed/State/Local resources
- Develop info & tools for decisionmakers

• Funding

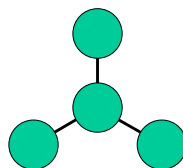
- \$500,000 direct program funds to SEOs to date
 - Omnibus & Financial Assistance awards to key states
- Lab technical assistance
 - NREL, SNL, INEEL
- SEP Special Project Awards
 - FY 02: 205,000 \$ to Alaska, California, Idaho
 - FY 03: \$223,000 Nevada, Arizona and Idaho





State Working Groups

- Secure state-wide coordination and support
- Co-sponsor workshops
- Identify key barriers/opportunities
- Leverage resources
- Provide information



State Working Group's Role

- Develop its wind resources for electricity generation
- Represents the wind interests within the state
- Works to minimize barriers to wind deployment
- Identify, develop, and implement incentives to wind deployment within the state
- Identify a leader amongst the working group
- Reflect the needs of each particular state



2002 Farm Bill

Title IX, Section 9006:

- 5 Years, \$23 M/year for Renewable and Energy Efficiency Projects
 - Wind, solar, biomass, geothermal, hydrogen, building and industrial efficiency
 - Farmers, Ranchers, Rural Small Businesses
 - **USDA Award Announcements in late-August**

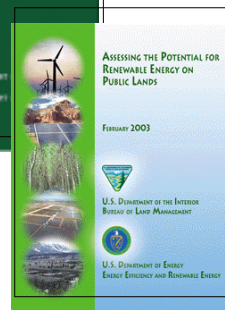
USDA-DOE Partnership:

- Development of Notice of Funding Availability (NOFA)
- DOE-Lab Technical Team
 - NREL, SNL, ORNL
- Renewables and Efficiency Technologies Briefings
 - Oklahoma City, April 8-10, 2003
 - Orlando, July 17, 2003
 - EERE Regional Office and NASEO Representation
- Development of Web-Based Info
- DOE Technical Review of Proposal, Completed July 25
- Program Measures and Metrics Development Underway
- Cost-shared Technical Staff Support Underway
- DOE/RO/SEO Outreach to Applicants Planned for FY04



Renewables & Federal Lands

- National Energy Policy, May 2001:
 - Increase Renewable Energy Development and Use on Federal Lands
 - DOE-Interior Lead Interagency Effort
 - August 2002 Summary Report to White House
- Bureau of Land Management:
 - Resource Assessment/Revision of Land Use Plans
 - DOE/NREL Support – MOU
 - February 2003 Report – Top Sites
- Forest Service
 - Review of BLM Process & Products
 - Briefings from DOE/NREL staff
- Department of Defense
 - \$6 million assessment of renewables on or near military bases
 - DOE labs providing technical support





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Offshore Wind

Benefits & Issues:

- Higher-quality wind resources
- Economies of scale
- Proximity to loads
- Reduced land use & aesthetic concerns
- Jurisdictional issues – Federal, state, local
- Capital/maintenance costs
- Navigable water uses



Program Activities:

- NWCC Offshore Workshop, July 2003
- Deep-water Tech. Offshore Mtg, Fall 2003
- LWST Phase II Solicitation – Offshore element
- Tracking Enviro. Issues and U.S. Offshore Projects
- Assessing European Offshore Activities



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Wind Story...

- Benefits:
 - Stabilize/Hedge Energy Prices
 - Abundant Domestic Energy Resource
 - Safe, Pollution Free
 - Low-Cost Emissions Investment
 - Stretch Existing Fossil Fuels
- Issues:
 - Economics
 - Intermittency
 - Transmission
 - Utility Operations Impacts
 - Aesthetics, Noise
 - Avian
- Markets:
 - Distributed Generation
 - Wind / Hydrogen
 - Wind / Hydropower
 - Wind/Clean Water
 - Offshore Wind
- Final Analysis:
 - Wind Market will grow... but how much?
 - Legislation (RPS, PTC, State Tax)
 - Public/utility acceptance and demand



Public-Private Partnerships

- State Offices
- Governor's Office
- Economic Development Offices
- Non-Profit Organizations
- Agricultural Interest
- Private Sector
- Natural Energy Laboratories
- Federal Agencies and Programs
- Planning Commissions
- Regulatory Offices
- US Department of Energy
- Wind Developers
- Utilities



Common Goal



Sustainable
Wind
Industry In
Hawaii



Department of Energy
Bureau of Energy Efficiency and Renewable Energy

Our Role...

Assess customer priorities and needs

Identify EERE resources

Offer products and services from DOE

Leverage Federal/ non-Federal
resources

Monitor and report performance



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For further information...

DOE Wind and Hydropower Technologies Program & Regional Offices

- www.eere.energy.gov/wind
- www.eere.energy.gov/sro

American Wind Energy Association

- www.awea.org

National Wind Coordinating Committee

- www.nationalwind.org

Utility Wind Interest Group

- www.uwig.org

